UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,883	01/09/2002	Sanjaya Kumar	ANDIP007	1172

22434	7590	05/31/2005

BEYER WEAVER & THOMAS LLP
P.O. BOX 70250
OAKLAND, CA 94612-0250

EXAMINER
SERRAO, RANODHI N

ART UNIT	PAPER NUMBER
2141	

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _09 January 2002_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-52_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-52_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _23 April 2002_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-52 are rejected under 35 U.S.C. 102(e) as being anticipated by

Blumenau et al. (6,260,120).

3.   As per claim 1, Blumenau et al. teaches a method of implementing storage

virtualization in a storage area network (column 8, lines 5-10), the method comprising:

creating a virtual enclosure, the virtual enclosure having one or more virtual enclosure

ports and being adapted for representing one or more virtual storage units, each of the

virtual storage units representing one or more physical storage locations on one or more

physical storage units of the storage area network (column 7, lines 16-23); associating

each of the virtual enclosure ports of the virtual enclosure with a port of a network

device within the storage area network (column 18, lines 8-34); and assigning an

address or identifier to each of the virtual enclosure ports (column 11, line 58-column

12, line 8).

4.   As per claim 2, Blumenau et al. teaches a method, wherein associating each of

the virtual enclosure ports of the virtual enclosure with a port of a network device within

the storage area network comprises: instructing a port of a network device within the

storage area network to handle messages addressed to the address or identifier

assigned to the associated virtual enclosure port (column 16, line 60-column 17, line

19).

5.   As per claim 3, Blumenau et al. teaches a method, wherein associating each of

the virtual enclosure ports of the virtual enclosure with a port of a network device within

the storage area network comprises: instructing a port of a network device within a

virtual SAN to handle messages addressed to the address or identifier assigned to the

associated virtual enclosure port (column 40, line 66-column 41, line 7).

6.   As per claim 4, Blumenau et al. teaches a method, further comprising:

associating a Node World Wide Name with the virtual enclosure (column 11, lines 15-

24).

7.   As per claim 5, Blumenau et al. teaches a method, further comprising: assigning

a Port World Wide Name to each of the virtual enclosure ports such that the Port World

Wide Name is associated with an associated port of a network device within the storage

area network (column 11, lines 15-24).

8.   As per claim 6, Blumenau et al. teaches a method, wherein the port of the

network device within the storage area network is a port of a fibre channel device

(column 9, lines 25-49).

9.   As per claim 7, Blumenau et al. teaches a method, wherein assigning an address

or identifier to each of the virtual enclosure ports comprises: assigning a FCID to each

of the virtual enclosure ports (column 28, lines 33-51).

10.   As per claim 8, Blumenau et al. teaches a method, further comprising: selecting a number of virtual enclosure ports of the virtual enclosure (column 29, lines 6-30).

11.   As per claim 9, Blumenau et al. teaches a method, wherein the number of virtual enclosure ports of the virtual enclosure is greater than a number of ports of each network device within the storage area network (column 18, lines 8-34).

12.   As per claim 10, Blumenau et al. teaches a method, wherein associating each of the virtual enclosure ports of the virtual enclosure with a port of a network device within the storage area network comprises: associating the virtual enclosure ports with ports of one or more network devices within the storage area network (column 25, lines 29-49).

13.   As per claim 11, Blumenau et al. teaches a method, wherein associating each of the virtual enclosure ports of the virtual enclosure with a port of a network device within the storage area network comprises: binding a port of a network device within the storage area network to one or more of the virtual enclosure ports (column 10, lines 42-67).

14.   As per claim 12, Blumenau et al. teaches a method, further comprising: instructing one or more additional ports of one or more network devices within the storage area network to trap messages directed to one of the virtual enclosure ports (column 41, lines 8-21).

15.   As per claims 13 and 15, Blumenau et al. teaches a method, wherein one or more of the virtual storage units each comprises a VLUN or other virtual representation of storage on the storage area network (column 24, lines 34-55 and column 43, lines 1-21).

16.   As per claim 14, Blumenau et al. teaches a method, farther comprising: assigning

one or more virtual storage units to the virtual enclosure (column 24, lines 34-55).

17.   As per claim 16, Blumenau et al. teaches a computer-readable medium storing

thereon computer-readable instructions for implementing storage virtualization in a

storage area network (column 8, lines 5-10), comprising: instructions for creating a

virtual enclosure, the virtual enclosure having one or more virtual enclosure ports and

adapted for representing one or more virtual storage units, each of the virtual storage

units representing one or more physical storage locations on one or more physical

storage units of the storage area network (column 7, lines 16-23); instructions for

associating each of the virtual enclosure ports of the virtual enclosure with a port of a

network device within the storage area network (column 18, lines 8-34); and instructions

for assigning an address or identifier to each of the virtual enclosure ports (column 11,

line 58-column 12, line 8).

18.   As per claim 17, Blumenau et al. teaches an apparatus for implementing storage

virtualization in a storage area network (column 8, lines 5-10), comprising: means for

creating a virtual enclosure, the virtual enclosure having one or more virtual enclosure

ports and adapted for representing one or more virtual storage units, each of the virtual

storage units representing one or more physical storage locations on one or more

physical storage units of the storage area network (column 7, lines 16-23); means for

associating each of the virtual enclosure ports of the virtual enclosure with a port of a

network device within the storage area network (column 18, lines 8-34); and means for

assigning an address or identifier to each of the virtual enclosure ports (column 11, line

58-column 12, line 8).

19.   As per claim 18, Blumenau et al. teaches a network device adapted for

implementing storage virtualization in a storage area network, comprising: a processor;

and a memory, at least one of the processor and the memory (column 9, lines 25-49),

being adapted for: creating a virtual enclosure, the virtual enclosure having one or more

virtual enclosure ports and adapted for representing one or more virtual storage units,

each of the virtual storage units representing one or more physical storage locations on

one or more physical storage units of the storage area network (column 7, lines 16-23);

associating each of the virtual enclosure ports of the virtual enclosure with a port of a

network device within the storage area network (column 18, lines 8-34); and assigning

an address or identifier to each of the virtual enclosure ports (column 11, line 58-column

12, line 8).

20.   As per claim 19, Blumenau et al. teaches a method of performing LUN mapping

in a storage area network, the method comprising: accessing a LUN mapping table

having one or more entries (column 7, lines 9-11), each of the entries identifying an

initiator in the storage area network, one or more of a set of one or more virtual

enclosure ports of a virtual enclosure, and associating a specified logical unit with one

or more virtual storage units (column 27, lines 23-38), each of the virtual storage units

representing one or more physical storage locations on one or more physical storage

units of the storage area network (column 24, lines 10-33), wherein the virtual enclosure

is adapted for representing the set of one or more virtual storage units (column 24, lines

34-55) and each of the virtual enclosure ports is associated with a port of a network device within the storage area network (column 24, lines 10-33); and when a request for the specified logical unit is received from the initiator via one of the associated virtual enclosure ports, identifying one of the entries in the LUN mapping table and employing the one or more virtual storage units specified in the entry to service the request (column 29, lines 43-56).

21.   As per claim 20, Blumenau et al. teaches a computer-readable medium storing thereon instructions for performing LUN mapping in a storage area network, comprising: instructions for accessing a LUN mapping table having one or more entries (column 7, lines 9-11), each of the entries identifying an initiator in the storage area network, one or more of a set of one or more virtual enclosure ports of a virtual enclosure, and associating a specified logical unit with one or more virtual storage units (column 27, lines 23-38), each of the virtual storage units representing one or more physical storage locations on one or more physical storage units of the storage area network (column 24, lines 10-33), wherein the virtual enclosure is adapted for representing the set of one or more virtual storage units (column 24, lines 34-55) and each of the virtual enclosure ports is associated with a port of a network device within the storage area network (column 24, lines 10-33); and instructions for identifying one of the entries in the LUN mapping table and employing the one or more virtual storage units specified in the entry to service the request when a request for the specified logical unit is received from the initiator via one of the associated virtual enclosure ports (column 29, lines 43-56).

22.   As per claims 21 and 35, Blumenau et al. teaches a method of implementing

storage virtualization in a storage area network, the method comprising: sending or

receiving a virtualization message to a port of a network device within the storage area

network, the virtualization message instructing the port to handle messages addressed

to a virtual enclosure port of a virtual enclosure, the virtual enclosure having one or

more virtual enclosure ports and being adapted for representing one or more virtual

storage units (column 25, lines 29-49), each of the virtual storage units representing one

or more physical storage locations on one or more physical storage units of the storage

area network (column 25, lines 8-28); and receiving or sending a virtualization response

from the port of the network device in response to the virtualization message (column

25, lines 50-67).

23.   As per claim 22, Blumenau et al. teaches a method, wherein the virtual enclosure

port is identified by a NWWN and a PWWN (column 12, lines 27-54).

24.   As per claim 23, Blumenau et al. teaches a method, wherein the virtualization

response indicates that the port is configured to handle messages addressed to the

virtual enclosure port of the virtual enclosure (column 16, line 60-column 17, line 19).

25.   As per claim 24, Blumenau et al. teaches a method, wherein the virtualization

message indicates that the port is to obtain an address or identifier assigned to the

virtual enclosure port (column 12, lines 27-54).

26.   As per claim 25, Blumenau et al. teaches a method, wherein the virtualization

message is a bind message or a trap message (column 11, lines 41-57).

27.   As per claim 26, Blumenau et al. teaches a method, wherein the virtualization response comprises the address or identifier assigned to the virtual enclosure port (column 11, line 58-column 12, line 8).

28.   As per claim 27, Blumenau et al. teaches a method, wherein the virtualization message indicates that the port is to obtain an address or identifier assigned to the virtual enclosure port from a DNS server (column 11, lines 41-57: wherein the name server serves the function of a DNS server).

29.   As per claim 28, Blumenau et al. teaches a method, further comprising: receiving the address or identifier assigned to the virtual enclosure port (column 12, lines 27-54).

30.   As per claims 29 and 31, Blumenau et al. teaches a method, wherein the address or identifier is an FCID (column 28, lines 33-51).

31.   As per claim 30, Blumenau et al. teaches a method, wherein the virtualization message indicates that the port is to handle messages addressed to an address or identifier assigned to the virtual enclosure port (column 40, line 66-colun 41, line 7).

32.   As per claim 32, Blumenau et al. teaches a computer-readable medium storing thereon computer-readable instructions for implementing storage virtualization in a storage area network, comprising: instructions for sending a virtualization message to a port of a network device within the storage area network, the virtualization message instructing the port to handle messages addressed to a virtual enclosure port of a virtual enclosure, the virtual enclosure having one or more virtual enclosure ports and being adapted for representing one or more virtual storage units (column 25, lines 29-49), each of the virtual storage units representing one or more physical storage locations on

one or more physical storage units of the storage area network (column 25, lines 8-28);

and instructions for receiving a virtualization response from the port of the network

device in response to the virtualization message (column 25, lines 50-67).

33.   As per claim 33, Blumenau et al. teaches an apparatus adapted for implementing

storage virtualization in a storage area network, comprising: means for sending a

virtualization message to a port of a network device within the storage area network, the

virtualization message instructing the port to handle messages addressed to a virtual

enclosure port of a virtual enclosure, the virtual enclosure having one or more virtual

enclosure ports and being adapted for representing one or more virtual storage units

(column 25, lines 29-49), each of the virtual storage units representing one or more

physical storage locations on one or more physical storage units of the storage area

network (column 25, lines 8-28); and means for receiving a virtualization response from

the port of the network device in response to the virtualization message (column 25,

lines 50-67).

34.   As per claim 34, Blumenau et al. teaches an apparatus adapted for implementing

storage virtualization in a storage area network, comprising: a processor; and a

memory, at least one of the processor and the memory (column 9, lines 25-49), being

adapted for: sending a virtualization message to a port of a network device within the

storage area network, the virtualization message instructing the port to handle

messages addressed to a virtual enclosure port of a virtual enclosure, the virtual

enclosure having one or more virtual enclosure ports and being adapted for

representing one or more virtual storage units (column 25, lines 29-49), each of the

virtual storage units representing one or more physical storage locations on one or more

physical storage units of the storage area network (column 25, lines 8-28); and

receiving a virtualization response from the port of the network device in response to the

virtualization message (column 25, lines 50-67).

35.   As per claim 36, Blumenau et al. teaches a method, wherein the virtualization

message indicates that the port is to obtain an address or identifier assigned to the

virtual enclosure port, the method further comprising: obtaining the address or identifier

assigned to the virtual enclosure port (column 12, lines 27-54).

36.   As per claim 37, Blumenau et al. teaches a method, further comprising: storing

the address or identifier (column 12, lines 27-54).

37.   As per claim 38, Blumenau et al. teaches a method, wherein the virtualization

message indicates that the port is to obtain an address or identifier assigned to the

virtual enclosure port from a DNS server, the method further comprising: obtaining the

address or identifier assigned to the virtual enclosure port (column 12, lines 27-54).

38.   As per claim 39, Blumenau et al. teaches a method, further comprising: sending

the address or identifier assigned to the virtual enclosure port (column 12, lines 27-54).

39.   As per claims 40, 42, and 47, Blumenau et al. teaches a method, wherein the

address or identifier is an FCID (column 28, lines 33-51).

40.   As per claim 41, Blumenau et al. teaches a method, wherein the virtualization

message indicates that the port is to handle messages addressed to an address or

identifier assigned to the virtual enclosure port (column 16, line 60-column 17, line 19).

41.   As per claim 43, Blumenau et al. teaches a method, further comprising: handling

messages addressed to the address or identifier assigned to the virtual enclosure port

(column 16, line 60-column 17, line 19).

42.   As per claim 44, Blumenau et al. teaches a method, further comprising: handling

messages addressed to the virtual enclosure port of the virtual enclosure (column 16,

line 60-column 17, line 19).

43.   As per claim 45, Blumenau et al. teaches a method, further comprising: handling

messages addressed to the address or identifier assigned to the virtual enclosure port

(column 16, line 60-column 17, line 19).

44.   As per claim 46, Blumenau et al. teaches a method, further comprising: receiving

a report message requesting an identification of one or more of the virtual storage units

supported by an address or identifier assigned to one of the virtual enclosure ports

(column 12, lines 27-54); sending a reply message identifying one or more of the virtual

storage units (column 25, lines 50-67).

45.   As per claim 48, Blumenau et al. teaches a method, wherein one or more of the

virtual storage units comprises a VLUN or other virtual representation of storage on the

storage area network (column 24, lines 34-55 and column 43, lines 1-21).

46.   As per claim 49, Blumenau et al. teaches a method, wherein the one or more of

the virtual storage units identified in the reply message are those virtual storage units

that are visible to an initiator sending the report message (column 25, lines 50-67).

47.   As per claim 50, Blumenau et al. teaches a computer-readable medium storing

thereon computer readable instructions for implementing storage virtualization in a

storage area network, comprising: instructions for receiving a virtualization message at a port of a network device within the storage area network, the virtualization message instructing the port to handle messages addressed to a virtual enclosure port of a virtual enclosure, the virtual enclosure having one or more virtual enclosure ports and being adapted for representing one or more virtual storage units (column 25, lines 29-49), each of the virtual storage units representing one or more physical storage locations on one or more physical storage units of the storage area network (column 25, lines 8-28); and instructions sending a virtualization response from the port of the network device in response to the virtualization message (column 25, lines 50-67).

48.   As per claim 51, Blumenau et al. teaches a network device adapted for implementing storage virtualization in a storage area network, comprising: means for receiving a virtualization message at a port of a network device within the storage area network, the virtualization message instructing the port to handle messages addressed to a virtual enclosure port of a virtual enclosure, the virtual enclosure having one or more virtual enclosure ports and being adapted for representing one or more virtual storage units (column 25, lines 29-49), each of the virtual storage units representing one or more physical storage locations on one or more physical storage units of the storage area network (column 25, lines 8-28); and means for sending a virtualization response from the port of the network device in response to the virtualization message (column 25, lines 50-67).

49.   As per claim 52, Blumenau et al. teaches a network device adapted for implementing storage virtualization in a storage area network, comprising: a processor;

and a memory, at least one of the processor and the memory (column 9, lines 25-49),

being adapted for: receiving a virtualization message at a port of a network device

within the storage area network, the virtualization message instructing the port to handle

messages addressed to a virtual enclosure port of a virtual enclosure, the virtual

enclosure having one or more virtual enclosure ports and being adapted for

representing one or more virtual storage units (column 25, lines 29-49), each of the

virtual storage units representing one or more physical storage locations on one or more

physical storage units of the storage area network (column 25, lines 8-28); and sending

a virtualization response from the port of the network device in response to the

virtualization message (column 25, lines 50-67).

Conclusion

50.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. These references are disclosed in the Notice of References Cited

and teach numerous other ways of implementing virtualization, thus a close review of

them is suggested.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Ranodhi Serrao whose telephone number is (571)272-

7967. The examiner can normally be reached on 8:00-4:30pm, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on (571)272-3880. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RUPAL DHARIA
SUPERVISORY PATENT EXAMINER